EMPLOYING THE ARMY HEALTH SYSTEM OUTSIDE THE MAIN GATE

A Monograph

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2014-01

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ORGANIZATION.

1. REPORT DATE *(DD-MM-YYYY)*	2. REPORT TYPE	3. DATES COVERED *(From - To)*
22-05-2014	Master's Thesis	JUL 2013 - MAY 2014

4. TITLE AND SUBTITLE

EMPLOYING THE ARMY HEALTH SYSTEM OUTSIDE THE MAIN GATE

5a. CONTRACT NUMBER

5b. GRANT NUMBER

5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S)

JOHN W. TAYLOR III
MAJOR, USA
Medical Service Corps

5d. PROJECT NUMBER

5e. TASK NUMBER

5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)

U.S. Army Command and General Staff College
ATTN: ATZL-SWD-GD
100 Stimson Ave.
Fort Leavenworth, KS 66027-2301

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)

10. SPONSOR/MONITOR'S ACRONYM(S)

11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT

Approved for public release; distribution is unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT

In the aftermath of large natural disasters inside the United States, the survivors of the affected area historically suffer for a protracted amount of time until outside help reaches the region. The Department of Defense and specifically the Army Medical Department is the only federal agency proven to possess the capacity to respond and alleviate the suffering of the injured, sick, and dying in the mangled remains of the devastated area. Within the ravaged area, a gap of pain develops in the time that elapses between the natural disaster and the arrival of external assistance. Historical examples such as Hurricane Andrew and Hurricane Katrina expose the appallingly slow, ad hoc, untrained, and ill-equipped initial response of Army Medical Department units. Active duty medical units require timely notification, integrated joint and civilian training, and specialized equipment to minimize the duration of suffering. This research seeks to determine the most effective way to employ the Army Health System's unique capabilities to assist the citizens of the United States in the aftermath of a natural disaster to reduce the gap of pain.

15. SUBJECT TERMS

DSCA, Army Medical Department, Emergency Support Function #8, Army Health System, Gap of Pain, Hurricane Andrew, Hurricane Katrina

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			19b. TELEPHONE NUMBER *(Include area code)*
Unclassified	Unclassified	Unclassified	UU	59	

Reset

MONOGRAPH APPROVAL PAGE

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ABSTRACT

EMPLOYING THE ARMY HEALTH SYSTEM OUTSIDE THE MAIN GATE, by John W. Taylor III, 59 pages.

In the aftermath of large natural disasters inside the United States, the survivors of the affected area historically suffer for a protracted amount of time until outside help reaches the region. The Department of Defense and specifically the Army Medical Department is the only federal agency proven to possess the capacity to respond and alleviate the suffering of the injured, sick, and dying in the mangled remains of the devastated area. Within the ravaged area, a gap of pain develops in the time that elapses between the natural disaster and the arrival of external assistance. Historical examples such as Hurricane Andrew and Hurricane Katrina expose the appallingly slow, ad hoc, untrained, and ill-equipped initial response of Army Medical Department units. Active duty medical units require timely notification, integrated joint and civilian training, and specialized equipment to minimize the duration of suffering. This research seeks to determine the most effective way to employ the Army Health System's unique capabilities to assist the citizens of the United States in the aftermath of a natural disaster to reduce the gap of pain.

The research examines the policy framework of the Defense Support to Civilian Authorities environment to determine the legal ways to employ active duty forces. Once determined, the research compares two similar case studies of Hurricanes Andrew and Katrina to derive the most effective way to employ the Army Health System. In each of the examples, a set of criteria, exposes the previous trends from the evidence and qualitatively compares the actions of each event to provide a foundation for recommendations. The criteria are the time it takes to respond to the disaster area, situational awareness to coordinate and integrate capabilities with jurisdictional authorities, and unit training and readiness to respond. The analysis of the evidence concludes there is a clear prerequisite to notify, train and equip specific medical units to execute the sequential process contained in the National Response Framework. Additionally, improvement in the civil-military relationships of the multiple jurisdictions requires integrated training scenarios designed to arrange the response in time, space, and purpose by capability to achieve a unified effort.

Recommendations for the future employment of the Army Health System's powerful medical capability to minimize the suffering of American citizens in the aftermath of natural disasters include: selecting and notifying units from each of the medical functional areas, regionally aligning active duty US Army medical units to United States Northern Command, and conducting annual training exercises that include all the agencies within the Emergency Support Function.

ACKNOWLEDGMENTS

I would like to acknowledge my amazing wife and children for enduring the hours I spent in the “hole” I created in our basement to complete this monograph. My wife’s remarkable ability to balance sick children, personal injuries, and a cranky and often moody husband through this year in school is astonishing. Without her dedication to our family and the military, my ability to complete this monograph and graduate would not be feasible. I would also like to acknowledge Dr. Stephen Lauer, my monograph director, for his unfathomable patience and understanding in dealing with me and my southern grammar to get me to the finish line with this monograph. My acknowledgements also extend to Colonel Charles Evans for his mentorship throughout the year and taking this mediocre medical service corps officer and molding me into a productive member of the School of Advanced Military Studies community. Finally, I would like to thank all my seminar classmates for their positive influence on my personal and professional life. Because of them, I always enjoyed entering the classroom every morning to hear the banter on the topic at hand.

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ACRONYMS

AMEDD	Army Medical Department
AHS	Army Health System
CSH	Combat Support Hospital
DHHS	Department of Health and Human Services
DOD	Department of Defense
DSCA	Defense Support to Civilian Authorities
ESF	Emergency Support Functions
FEMA	Federal Emergency Management Agency
FORSCOM	United States Army Forces Command
MSU	Medical Support Units
NDMS	National Disaster Medical System
NORTHCOM	United States Northern Command
NRF	National Response Framework
NRP	National Response Plan

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INTRODUCTION

On September 8, 1900, the deadliest hurricane on record devastated the city of Galveston, Texas. Claiming between 8,000 and 12,000 lives, destroying roads, railways, and telegraphs, the hurricane left the survivors stranded until outside help could reach the city of rubble. Galveston lay below sea level and a large storm surge churned the city into a pile of broken lumber. Survivors struggled to remove the remnants of their lives from the devastation and piece them back together into a community.[1] In the picture below, the catastrophic results of the hurricane are evident.

Figure 1. Picture of Galveston, Texas

Source: Library of Congress Upload, "Galveston Disaster, Relief Party Working at Avenue P and Tremont Street," Library of Congress Prints and Photographs Division, http://lcweb2.loc.gov/service/pnp/cph/3b10000/3b19000/3b19200/3b19254r.jpg (accessed 31 March 2014).

[1] Amanda Ripley, "A Brief History of: The Galveston Hurricane," *Time*, 15 September 2008, http://content.time.com/time/nation/article/0,8599,1841442,00.html (accessed 17 February 2013).

Corpses and debris littered the streets of the once thriving city. So numerous were the bodies, they were piled on carts and transported to the coast for burial at sea. The response by state and federal agencies of the time was simply to help with reconstruction weeks after the incident. At the time, reconstruction efforts centered on raising the city above sea level and construction of a large sea wall to protect the city from future hurricanes. The Federal government made no effort to try to save lives or alleviate suffering in the immediate aftermath of the hurricane. For the citizens of Galveston there was no reprieve to the unending torment of digging themselves out.

Over a hundred years later, a category five hurricane carved a swath across southern Florida in four hours that killed 26 people and left another 40 to die later from the effects of Hurricane Andrew. The hurricane's destruction resulted in 25 billion dollars in damage and left the state and federal government in a state of consternation. Unlike the scene in Galveston, over a hundred years of statutory law empowered the federal government to assist states or local governments suffering from such disasters. State and federal agencies attempted to respond in time to the cries for assistance from the citizens of Florida, but the assistance was slow to arrive from the agencies now responsible for disaster relief. The Department of Defense (DOD) would eventually send over 30,000 Federal and National Guard forces, the largest federal military response to a natural disaster in history, to assist in relief efforts.[2] Political debates and media reports placed blame on all aspects of the disaster relief effort. Unfortunately, little changed and the lessons of Hurricane Andrew were left unheeded with cataclysmic results.

Thirteen years after Hurricane Andrew, Hurricane Katrina made landfall in the southern United States hitting the record books as the third deadliest hurricane in history with a death toll of over 1,300. A massive storm surge breached the Lake Pontchartrain levees and inundated 80

[2] US General Accounting Office, GAO 93-186, *Disaster Management Improving the Nation's Response to Catastrophic Disasters*, Washington, DC: US Government Accountability Office, July 1993. http://www.gao.gov/products/RCED-93-186 (accessed 21 August 2013), 15.

percent of the city of New Orleans in 20 feet of water. Survivors were left sitting on rooftops, clinging to trees, and attempting to swim to safety amid the destruction around them. Over 200,000 people displaced by the storm and suffering from chronic medical conditions waited for medical assistance in the floodwaters.[3]

Although it was plagued with inefficiencies, the response to Hurricane Katrina eventually delivered an overwhelming amount of federal assistance. In conjunction with other federal agencies, the DOD sent in over 22,000 Title 10 Federal forces to reinforce the 46,000 Title 32 National Guard forces already on the ground aiding in the response efforts.[4] Lambasted by the media, the characterization of efforts was slow, uncoordinated, untrained, underutilized, and not timely to assuage the torment of Hurricane Katrina. These accusations applied to a majority of the Title 10 medical units that arrived too late to care for the initial victims of the storm. Subsequently, they remained grossly underutilized and unable to reduce the overall death toll.[5]

In the examples above, there was an unquestionable requirement for outside medical assistance to reprieve American citizens from the gap of pain between the hurricane's landfall and the arrival of help. The Galveston hurricane provided a grave instance of consequences when there was not an outside medical response to a hurricane. Hurricanes Andrew and Katrina were inverse historical events in which the massive response was slow, uncoordinated, and underutilized to reduce the gap of pain. A failure to respond in time turns a medical mission of

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[3] Assistant to the President for Homeland Security and Counterterrorism, *Federal Response to Hurricane Katrina: Lessons Learned*, February 2006, Louis J. Blume Library, St. Mary's University, http://library.stmarytx.edu/acadlib/edocs/katrinawh.pdf (accessed 21 August 2013), 58.

[4] James Wombwell, *Occasional Paper #29: Army Support During the Hurricane Katrina Disaster* (Fort Leavenworth, KS: Combat Studies Institute Press, 2009), Combined Arms Research Library Digital Library, http://cgsc.contentdm.oclc.org/cdm/ref/collection/p16040coll3/id/181(accessed 21 August 2013), 4.

[5] Assistant to the President for Homeland Security and Counterterrorism, *Federal Response to Hurricane Katrina,* 58.

caring for the injured and displaced persons to a task of human remains recovery and pandemic disease outbreak control.

The gap of pain is the time between the hurricane's landfall and the response by agencies outside the damaged area responding as referenced in numerous documents of the lessons learned from the disaster. The gap of pain became common jargon in discussions of catastrophic incident response to describe the relationship between the crisis event, the requirement of the affected population, the level of effort to alleviate suffering, key decision points, and jurisdictional responder's response time. After Hurricane Katrina, the only federal agency recognized as capable of providing the massive level of effort required to reduce the gap of pain was the DOD. Within the DOD, the only agency with the resources and expertise to provide treatment, evacuation, and sustainment on land of a large causality population is the Army Medical Department (AMEDD). The ability to reduce this gap of pain with AMEDD Title 10 forces is at the core of this monograph research. The figure below displays the gap of pain.[6]

[6] Gregory A. S. Gecowetas and Jefferson P. Marquis, "Applying Lessons of Hurricane Katrina," *Joint Forces Quarterly*, no. 48 (1st quarter, 2008): 71-73.

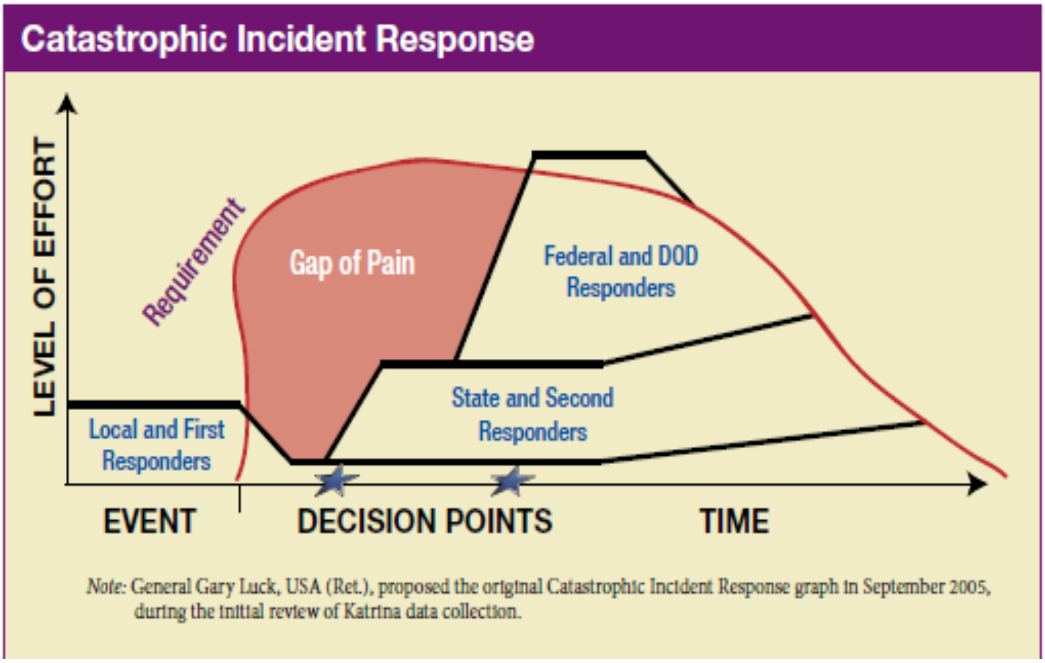

Figure 2. The Gap of Pain

Source: Gregory A.S. Gecowetas and Jefferson P. Marquis, "Applying Lessons of Hurricane Katrina," *Joint Forces Quarterly*, no. 48 (1st quarter, 2008): 71-73.

The effect of natural disasters, specifically catastrophic hurricanes, is only going to escalate as population centers along the coast increase in size. Presidential declarations of disasters occurred 377 times from January 2000 to March 2007.[7] The policy related to declarations of national emergency changes only when the citizens mobilize in disgust at the state or federal response to a catastrophic disaster and demand the legislative body enact changes for the future. Hurricane Katrina was an example of this process. In an effort to glean lessons learned from these events and reduce the gap of pain in the future, the Federal Emergency Management Agency (FEMA) under the Strategic Foresight Initiative released the Crisis Response and

[7] Center for Army Lessons Learned, Handbook No. 11-07, *Disaster Response Staff Officer's Handbook: Observations, Insights, and Lessons*, US Army Combined Arms Center, December 2010. http://usacac.army.mil/cac2/call/docs/11-07/11-07.pdf (accessed 21 August 2013), 5.

Disaster Resilience 2030 findings in January 2012. One of the findings explores the requirement to "employ alternative surge models to meet the challenging confluences of social, technological, environmental, economic, and political factors and conditions."[8] The presented solutions include the increased use of the military assets to fulfill the shortfalls in the regional response capabilities.[9]

There is an extensive body of federal statutes, federal documents, and DOD documents which dictates the authorities and resources the federal government can surge to reduce the gap of pain in local and state jurisdictions. Most notable of these are the Robert T. Stafford Disaster and Emergency Assistance Act, Presidential Policy Directive #8: National Preparedness, and the DOD Directive 3025.18 Defense Support of Civilian Authorities. Specific to AMEDD response to the gap of pain, these documents are the legal framework for the ways to employ the unique capabilities of the organization. Within this legal framework, what is the most efficient way of employing the Army Health System's (AHS) unique capabilities to assist the citizens of the United States in the aftermath of a natural disaster to reduce the gap of pain?

In order to uncover the answer to this research question, it is necessary to highlight variables with historical response efforts by AMEDD assets in the Defense Support to Civilian Authorities (DSCA) environment. There are three variables that affect the ability to reduce the gap of pain with level of effort required. The first variable is the time required for the units to respond and reach the disaster event. The second variable is the situational awareness of civil-military relationships when using Title 10 forces in response to state governor requests to gain a

[8] Federal Emergency Management Agency, *Crisis Response and Disaster Resilience 2030: Forging Strategic Action in an Age of Uncertainty*, US Department of Homeland Security, January 2012. http://www.fema.gov/media-library/resources-documents/collections/21 (accessed 14 October 2013), 16.

[9] Ibid.

unity of effort. The third variable is the funding, training of personnel, equipment, and logistics support structure to sustain operations in the unique circumstances of the DSCA environment.

In response to these variables, there are characteristics that emerge as solutions that could reduce the gap of pain. First, notifying specific medical units under United States Army Forces Command (FORSCOM) they are responsible for responding to a catastrophic hurricane event. Once notified, regionally aligning the medical units to United States Northern Command (NORTHCOM) is necessary to receive funding for training and readiness under the current DOD budget constraints. A final component of the solution is to train with local, state, and federal agencies in a national level training exercise. With these three components of the solution application, there arises an operational level of DSCA between the different local, state, and federal agencies all trying to apply their part of the response to the affected area. Therefore, the monograph researches who is the actor that arranges the time, space, and purpose of the medical units in DSCA.

The literature supporting the research comprises official documents, journal articles, news articles, and unpublished military and civilian performance review documents found on open internet sources. The journal articles and news articles support the underpinning for the case studies of public opinion. Joint, Army, and AMEDD doctrinal publications informed unit capabilities, ways available to employ them, and what capabilities they possessed that apply to the DSCA mission. Finally, an extensive body of performance reviews, lessons learned, and after action reports provides the intricate details necessary to evaluate the criteria in both case studies.

The methodology the monograph uses is to initially examine policy to derive the legal ways to employ Title 10 forces, and then compare two similar case studies with evaluation criteria to derive the most efficient way to employ AMEDD Title 10 forces in the DSCA environment. The evaluation criteria are the variables explained above. In short, the criteria are the time it takes to respond to the disaster area, situational awareness to coordinate and integrate

capabilities with jurisdictional authorities, and unit training and readiness to respond. The selection of the case studies required unique data richness specifically in the employment of AMEDD Title 10 forces and policy directed to their use in the United States. In both Hurricane Andrew and Katrina, established policy and a substantial number of medical assets deployed to the disaster locations with sufficient data collected on their organizational activities in relation to the local, state, and federal organizations. Another factor other than data richness is the similarity and short timeframe between the events. The United States has not experienced similar cases of two large disastrous events within a close timeframe that required the deployment of AMEDD with sufficient data richness to conduct a case study on policy.

The monograph organization correlates to the methodology. The second section of the monograph extracts the essential policy, frameworks, organizations capabilities and characteristics and discusses their relationship to the research and case studies. This section provides the legal framework for the ways the DOD deploys in DSCA supporting state authorities and the unique characteristics associated with DSCA missions. The following section discusses case studies of Hurricane Andrew and Katrina. The fourth section of the paper is the comparison and analysis of the evidence from the case studies. Finally, the monograph closes with recommendations and conclusions of the research.

DSCA ENVIRONMENT: POLICY, ORGANIZATIONS, AND AMEDD'S ROLE

A hurricane's clash with the populace living on the coast is an amazing display of unbridled force and destructive power. The different levels of government entrusted with protecting the citizens of areas where hurricanes frequent have a long history of drafting legislation to both fund mitigation and response efforts which protect the citizens of their jurisdictions. The debates to change the legal ways to respond to a disaster tend to focus around the epicenter of authorities and funding. These authorities and funding issues, amongst others, manifest into a web of legal provisions that both constrain and enable the government to respond to the needs of its citizens. This section reviews the foundations of disaster statutes and the legal ways the framework enables or constrains the capabilities of AMEDD to support the citizens living in the aftermath of a clash with nature's fury. The second portion of this section provides a brief summary of organizations, capabilities of the federal agencies, and AMEDD's role when called upon to support disaster relief endeavors.

Federal military response to natural disasters spans the history of the United States and brings forth a progression of statutes where no expressed constitutional or statuary authority existed. Additionally, several Presidents requested legislation from congress to authorize federal action to assist states.[10] Federal policy emerged from this gap in an attempt to enable responsible support of federal agencies to state authorities without usurping the authorities of elected officials. Initial efforts focused on material and monetary support by Congress authorizing the President to provide support, such as surplus military supplies, to assist local and state governments that suffered from a disaster. Federal support to state agencies derived from the

[10] Headquarters, Department of the Army, Army Doctrine Reference Publication 3-28, *Defense Support to Civilian Authorities* (Washington, DC: Government Printing Office, 2013.), Official Department of Army Publications and Forms, http://armypubs.army.mil/doctrine/ADRP_1.html (accessed 5 September 2013), 2-10.

increasing role of the federal government under the New Deal of the 1930s. The New Deal enabled multiple agencies to respond under congressional approval to assist state and local governments, as congress deemed necessary. It was not until 1950 that congress enacted the first expansive statute to synchronize the efforts of the new federal disaster response agencies.[11]

The Federal Disaster Assistance Act of 1950 was the first comprehensive legislation focused on synchronizing the efforts of multiple federal agencies, including the DOD, into a unity of effort under Presidential authority to assist local and state authorities in response to a natural disaster. The Disaster Assistance Act was the underpinned framework from which all subsequent natural disaster policy extracted its relevance and basis for authorities and allocation of funds. The Disaster Assistance Act of 1950 enacted two essential elements. The first was the authority granted to the President to act without Congressional approval to a natural disaster. The second was the process of a state governor requesting assistance from the President to assist the state's own relief efforts within their jurisdiction. Although the Disaster Assistance Act of 1950 embarked on a new epoch of federal disaster response, the following decade rendered the legislation inadequate to coordinate for large-scale disasters. [12]

In the 10 years between 1962 and 1972, there were four major hurricanes to strike the coastal regions of the United States. The major hurricanes were Carla in 1962, Betsy in 1965, Camille in 1969, and Agnes in 1972. In addition, major earthquakes struck Alaska in 1964 and California in 1971, which spurred Congress into action. Congress allocated additional funds to disaster victims in the Disaster Relief Act of 1966, and subsequently launched the foundations of

[11] Federal Emergency Management Agency, "About the Agency," under "History," US Department of Homeland Security Federal Emergency Management Agency, http://www.fema.gov/about-agency (accessed 14 January 2014).

[12] Bruce R. Lindsay and Justin Murray, *Disaster Relief Funding and Emergency Supplemental Appropriations*, Congressional Research Service Report for Congress, 12 April 2011, Federation of American Scientists. https://www.fas.org/sgp/crs/misc/R40708.pdf (accessed 21 August 2013), 3.

the current FEMA with the Disaster Relief Act of 1974. This Act provided three components to the current day legal framework. First, specifying duties and responsibilities for the federal agencies involved in disaster relief it provided structure to the relief efforts. By specifying the federal agencies responsibilities, it called for a Presidential declaration of disaster areas.[13] Finally, the act called for a multi-hazard approach to streamline the original method that divided the response between threats posed to the citizens by wildfires, earthquakes, and hurricanes amongst others.[14]

In 1988, Congress ratified the Robert T. Stafford Disaster Relief and Emergency Assistance Act, which established statutory authority for the federal government's use of the DOD and other federal agencies in support of disaster relief efforts. The act established a requirement for the state governor to request support from the President who then directs a DOD response, with a few exceptions for Title 10 forces used outside law enforcement role. Placing the DOD in a supporting role to the state governor's requests for assistance generates a bifurcation of authorities and the necessity for coordination and integration of capabilities to attain a unity of effort in disaster relief. Before the President can assist the governor, the relief effort must be of such magnitude that it is beyond the state's ability to respond. The state is also responsible for activating the state response plan, identifying state assets committed to relief efforts, and agree to the cost regimen between the state and federal agencies.[15]

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[13] All Government, "Federal Emergency Management Agency," under "History" http://www.allgov.com/departments/department-of-homeland-security/federal-emergency-management-agency-fema?agencyid=7345 (accessed 14 January 2014).

[14] Lindsay and Murray, *Disaster Relief Funding and Emergency Supplemental Appropriations*, 3.

[15] Federal Emergency Management Agency, *Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended, and Related Authorities as of April 2013*, Public Law 93-288, as amended 42 U.S.C 5121 et seq, US Department of Homeland Security, https://www.fema.gov/media-library/assets/documents/15271?id=3564 (accessed 21August 2013), 25-28.

Within the Stafford Act, there are five ways for the President to support a state's request with federal assets: a major disaster declaration, emergency declaration, 10-day emergency work authority, federal primary responsibility authority, and accelerated federal assistance and support. The major disaster declaration requires the state governor to first request one, which then allows all the readily available federal agencies, including the DOD, to respond. The Stafford Act also clarifies what actions the DOD can take prior to the disaster event under the emergency declaration by the President. The 10-day work authority provides states, upon request, the immediate assistance in clearing debris and restoration of essential public facilities and services such as hospitals. The federal primary response authority covers the response to an area or facility within the response state under federal jurisdiction such as a military installation. Another key aspect the Stafford Act brings to the DSCA environment is the immunity of medical personnel acting within their scope of practice provided they are not negligent in their acts. This provision is essential to authorize medical providers the ability to treat citizens outside the state where they are currently a licensed professional. The final aspect of the Stafford act is the funding of disaster relief. The Stafford Act requires DOD to capture the cost of their assistance and later request reimbursement.[16]

In order to provide a single reference that encapsulates all the legal parameters and other policy provisions of the DSCA environment, the DOD issued a DSCA directive delineating authorities and guidance regulating actions of the supporting organizations. DOD Directive 3025.18 incorporates and cancels the older DOD Directive 3025.1 and 3025.15. The explicit purpose of the directive is twofold; first, to provide guidance on the implementation, supervision, and monetary reimbursement for the ways military assets support civilian authorities or other qualifying agency requests for disaster relief; second, to stipulate the authorities for immediate

[16] Federal Emergency Management Agency, *Robert T. Stafford Disaster Relief and Emergency Assistance Act*, as amended. April 2013, 25-28.

response and emergency authority for the use of military force. By taking this twofold approach, the policy reinforces the statutory authority in the Stafford Act of supporting a request by the civilian authorities or following the direction of the President or a delegate authority such as the Secretary of Defense or Combatant Commander. Only one of these two methods can initiate DSCA activities.[17]

Civilian authorities can initiate DSCA activities through a written request or an initial oral request with a subsequent written request with both methods requiring an offer to reimburse the DOD under the Stafford Act and Economy Act unless explicitly exempted by law. Requests for the military to support disaster relief require a threshold attainment in six criteria before the military authority can authorize support to the disaster area. Criteria for evaluation are legality, lethality, risk, cost, appropriateness, and readiness.[18] The directive also calls for DSCA plans to integrate with the National Incident Management System for how military actions assimilate within the unity of effort of other federal and state agencies.[19]

At times in history and possibly in the future, there are incidents that could strike with such severity or magnitude that it does not afford the time to respond within the formal methods, so military commanders may choose to act within the immediate response or emergency authority. Immediate response authority grants the designated federal military commander the ability to save lives, prevent human suffering, or mitigate extensive property damage within the

[17] Secretary of Defense, Department of Defense Directive Number 3025.18, *Defense Support of Civil Authorities (DSCA)*, December 2010, Defense Technical Information Center. http://www.dtic.mil/whs/directives/corres/dir.html (accessed 21 August 2013), 1-4.

[18] Ibid., section 4.a. definitions of evaluation criteria: Legality is "compliance with laws"; Lethality is "potential to use deadly force by or against DoD Forces"; Risk is "Safety to DoD Forces"; Cost is "including the source of funding and the effect on the DoD budget"; Appropriateness is "whether providing the requested support is in the interest of the Department"; and Readiness is "impact on the Department of Defense's ability to perform its primary missions," 4.

[19] Secretary of Defense, Department of Defense Directive 3025.18, 4.

United States until the event subsides or civilian agencies are capable of taking over the relief. A response under this authority is subject to a cost reimbursement to the DOD yet is a feasible way for the military to respond in support of civilian authorities in extremis situations. This authority is an avenue for employment of AMEDD assets to reduce the gap of pain. The intent of immediate response authority constrains federal forces from acting in a law enforcement role that subjects populations to active duty military enforcement of laws, but permissible for the intent of alleviating suffering. Emergency Authority is the way authorized military commanders can act to reduce civil disturbance or unrest; this provision does not explicitly apply to the medical assets, although under this authority it is possible to ready forces for deployment in relief efforts.[20]

A final component of the DOD Directive 3025.18 is the power vested in the Combatant Commander to perform actions in the DSCA environment delegated by the Secretary of Defense. Actions under this provision can directly influence the variables associated with reducing the amount of time the population devastated by as disaster needlessly suffer. The Combatant Commander can place units on a twenty-four hour readiness status not to exceed seven days in preparation for a possible disaster incident. With this authority, the Combatant Commander may notify units prior to a hurricane's landfall, or ready the forces waiting for official notification of a DSCA mission. The second way to employ forces is by notifying the Secretary of Defense or Chairman of the Joint Chiefs of Staff. The commander can choose to deploy forces for up to 60 days without a request from civilian agency, or with a request from a primary agency such as FEMA or the Department of Health and Human Services (DHHS). These enabling ways of employment are specifically restricted to certain aviation assets, such as medical evacuation platforms, medical units, and other capabilities in the transportation and communication active duty military. The Combatant Commander has the responsibility to train with federal and state

[20] Secretary of Defense, Department of Defense Directive 3025.18, 4.

agencies in addition to his statutory Title 10 responsibility. Specifically, the Department of Homeland Defense and the federal designated FEMA responsible for coordinating the federal response to disaster relief. [21]

As the responsible agency for coordinating federal endeavors associated with the DSCA environment since 1979, FEMA is consistently in the media spotlight for systemic failures during catastrophic incidents.[22] FEMA utilizes a vast body of doctrine to coordinate the federal prevention, mitigation, response, and recovery activities of 26 different agencies and departments. The National Response Framework (NRF) is the doctrine describing the activities necessary to respond to an event that overwhelms the local and state capacity to provide for the citizens of their jurisdiction.[23] The NRF consistently undergoes revisions following the repercussions of major disasters such as Hurricane Hugo in 1989.[24] In the current version released May of 2013, there are four components to the NRF document: the base document, the Emergency Support Functions (ESF) annexes, support annexes, and incident annexes. From the base document's broad general description of the response efforts, the annexes stipulate the details necessary for response implementation and planning. The ESF annex specific to AMEDD integration to the

[21] Headquarters, Department of the Army, Army Doctrine Reference Publication 3-28, 2-12.

[22] Daniel Franklin,."The FEMA Phoenix: Reform of the Federal Emergency Management Agency," *Washington Monthly* (July/August 1995), http://www.washingtonmonthly.com/features/2005/0509.franklin.html (assessed 6 February 2014).

[23] Federal Emergency Management Agency, *National Response Framework; Second Edition,* May 2013, US Department of Homeland Security, http://www.fema.gov/media-library-data/20130726-1914-25045-8516/final_national_response_framework_20130501.pdf (accessed 21 August 2013), i.

[24] US General Accounting Office, GAO 93-46, *Disaster Management: Recent Disasters Demonstrate the Need to Improve the Nation's Response Strategy,* 1993, US General Accounting Office. http://www.gao.gov/products/T-RCED-93-46 (accessed 21 August 2013), 2.

comprehensive response plan is in ESF #8. This annex groups the federal response capabilities and resources into functional areas with a defined structure used in response to a disaster.[25]

ESF#8 is a prescriptive planning document for the actions necessary to support the NRF with public health and medical services. In line with federal and DSCA policy, it provides the guidance for the whole of community approach, priorities, principles, and interagency actions within the different levels of jurisdiction for a response area. Specific to this research is the DOD stipulated actions within the support function. The DOD capabilities and resources are subject to oversight of the ESF coordinator and the DHHS once approved for use. The DHHS is the primary agency responsible for the ESF and is the coordinator for integration within the NRF. The DHHS possesses some unique authorities outlined in the Emergency Management Assistance Compact, to support local, state or other jurisdictions with federal assets by special request without enacting a Stafford Act declaration. While the local, state or other jurisdiction still maintains the primary responsibility for responding to a public health incident, the ability to request DOD assistance contained in ESF #8 presents a unique set of circumstances for possible AMEDD employment in DSCA.[26]

Within ESF #8, numerous organizations from the federal level supplement the local and state jurisdictions. DHHS designed Disaster Management Assistant Teams and Medical Support Units (MSU) in the National Disaster Medical System (NDMS) to furnish volunteers to an organization and a framework for medical response in ESF #8. The NDMS is an interagency agreement between DHHS, Department of Homeland Security, DOD and the Department of

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[25] Federal Emergency Management Agency, *National Response Framework; Second Edition*, 2.

[26] Federal Emergency Management Agency, *Emergency Support Function # 8; Public Health and Medical Services Annex*, May 2013, US Department of Homeland Security, http://www.fema.gov/media-library-data/20130726-1914-25045-5673/final_esf_8_public_health_medical_20130501.pdf (accessed 11 October 2013), 2-3.

Veteran Affairs. In 2005, these agencies signed a Memorandum of Agreement to coordinate efforts during a natural disaster. Outside the DOD, Disaster Management Assistant Teams and MSU volunteers and equipment fly in from different locations and enable DHHS to implement the NDMS as a coordinated effort within the larger NRF managed by FEMA. The Disaster Management Assistant Teams and MSUs operated in a similar capacity to AMEDD units although too few existed and endurance was insufficient to sustain operations during catastrophic events.[27]

The design of AMEDD units assigned to FORSCOM is to deliver AHS through a modular and capabilities-based unit organization.[28] Modular units are a System of Systems continuously synchronized to perform medical missions in support of combat operations and the DSCA environment.[29]

[27] National Disaster Medical System, "National Disaster Medical System, Serving the Federal Response with Medical Services," under "NDMS Home," http://ndms.fhpr.osd.mil/ (accessed 14 October 2014).

[28] The Army Health System as defined in FM 4-02: "The AHS is a component of the DOD Military Health System (MHS). It is responsible for the operational management of the HSS and FHP missions for training, pre-deployment, deployment, and post-deployment operations. The AHS includes all mission support services performed, provided, or arranged by the AMEDD to support HSS and FHP mission requirements for the Army and as directed, for joint, intergovernmental agencies, and multinational forces." Headquarters, Department of the Army, Field Manual 4-02, *Army Health System* (Washington, DC: Government Printing Office, 2013), Official Department of the Army Publications and Forms, http://armypubs.army.mil/doctrine/8_Series_Collection_1.html (accessed 5 September 2013), 1-2.

[29] Headquarters, Department of the Army, Field Manual 4-02, 1-11.

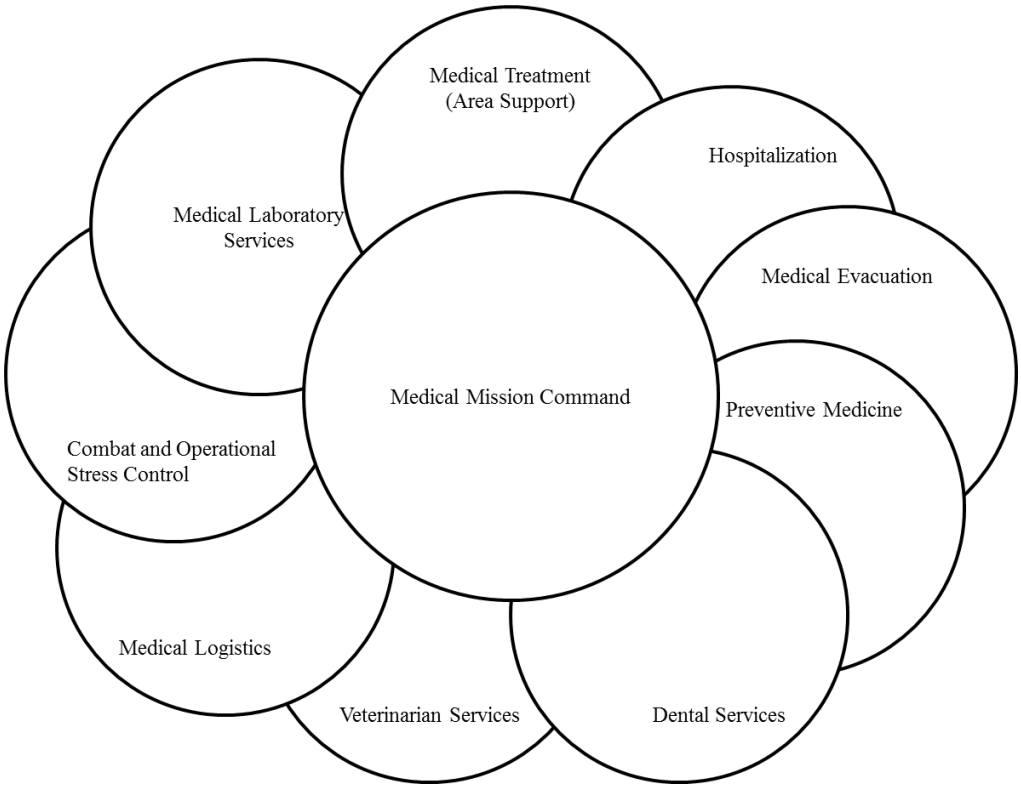

Figure 3. Army Health System of Systems

Source: Headquarters, Department of the Army, Field Manual 4-02, *Army Health System* (Washington, DC: Government Printing Office, 2013), Official Department of the Army Publications and Forms, http://armypubs.army.mil/doctrine/8_Series_Collection_1.html (accessed 5 September 2013), 1-11.

Essentially, these systems build on each other to assist in supporting the DSCA missions with medical capability. The medical mission command elements are similar to other modular brigade and battalion organizations found throughout the Army. Unique capabilities in AHS are able to provide specific medical treatment, evacuation, hospitalization and ancillary services to the NDMS as requested by the governor of the state or DHHS to support the NRF.

In summary, the ways to employ AMEDD assets are in essence by request or directive of an executive authority to assist in a natural disaster response. Efficiencies manifest from ways within the legal framework and in understanding the nuances in the different policies discussed in

this section. The case studies in the following section review two similar instances in history where the federal, state, and local authorities' combined efforts in the aftermath of Hurricane Andrew in 1992 and in 2005 for Hurricane Katrina.

CASE STUDIES

Hurricane Andrew

On the August 14, 1992, a tropical wave formed off the west coast of Africa and in 10 days grew into the most economically devastating hurricane to hit the United States soil in history. The weather pattern moved into the North Atlantic on August 17, 1992 and grew into a tropical storm, the first one of the hurricane season. Andrew was the chosen name for the storm as it continued to move in a westerly direction towards the United States. By the morning of August 22, 1992, it reached hurricane strength winds and was renamed Hurricane Andrew, the first one in two years to form from a tropical wave in the Atlantic Ocean. Andrew made landfall on the eastern edge of south Florida in the early morning hours of August 24, 1992 as a category five hurricane with sustained winds of 145 miles an hour, gusting to 175 miles an hour. Homestead Air Force Base was the site of initial landfall and within four hours, it swept across Florida leaving an extensive path of destruction.[30]

Hurricane Andrew left 26 people dead with another 40 to perish from indirect causes related to the storm. It destroyed over 25,000 homes and left well over another 100,000 damaged. The economic devastation included over 82,000 businesses and 59 hospitals facilities. The infrastructure of south Florida was in shambles. In a swath between Homestead and Florida City north to the city of Kendall, there was over 3,000 miles of power lines, over 3,000 water mains, and just over 9,500 traffic signs and lights in ruins. More than 1.5 million people were without

[30] Ed Rappaport, "Preliminary Report; Hurricane Andrew 16-28 August1992, updated 10 December, addendum 7 February 2005, Category 5 upgrade," under "Tropical Cyclone Report for Hurricane Andrew," National Oceanic Atmospheric Administration, National Hurricane Center, http://www.nhc.noaa.gov/outreach/history/#andrew (accessed 15 January 2014), 1-2.

power and 150,000 without phone service. The estimated economic damage was between 25 and 27 billion dollars.[31]

The state and local authorities took significant efforts to prepare for the initial landfall of Hurricane Andrew. Preparations were primarily mass evacuations of the areas under a hurricane warning. In Dade County Florida, over 500,000 people left their homes, with over 300,000 evacuated from Broward County and Palm Beach County respectively. Counties further west in Florida asked their citizens to leave in fewer numbers due to the initial threat, but over 50,000 eventually evacuated from the projected path of the storm from the inland counties. The evacuations of counties near the coast and low lying inland areas reduced the number of possible causalities from the record storm surge. Louisiana and Texas responded to the hurricane warnings and evacuated over a million people from the coastal regions of their states, although the majority of the damage inflicted was in the south Florida peninsula.[32]

Hurricane Andrew provided the first opportunity for the FEMA to exercise the National Response Plan, now amended and referred to as the NRF. The initial actions by FEMA began five hours after the hurricane made landfall in south Florida. FEMA activated an Emergency Support Team and deployed them to south Florida to coordinate and assist the efforts of the ESF lead proponents and their members. Initial efforts of FEMA were fraught with issues that ultimately delayed the response of other federal agencies and the DOD capabilities. A lack of damage assessments caused FEMA to assume no action was necessary unless requested by the local or

[31] Editorial, "Hurricane Andrew, 20 facts you may have forgotten," *Huffington Post*, Miami Edition, 28 August 2012, http://www.huffingtonpost.com/2012/08/21/20-facts-hurricane-andrew-anniversary_n_1819405.html (accessed 23 January 2014).

[32] Rappaport, "Preliminary Report; Hurricane Andrew 16-28 August1992, updated 10 December, addendum 7 February 2005, Category 5 upgrade," 1-2.

state jurisdiction.[33] It took the agency officials another two days before they realized a massive federal response would be required, but the state had not yet requested support. This attitude initiated a response that suffered from miscommunication and confusion at all levels of government, which slowed the services so desperately required of the disaster victims.[34]

President George Herbert Walker Bush (President H.W. Bush) declared south Florida a disaster area eight hours after Hurricane Andrew made landfall.[35] This enacted the Stafford Act response for the ravaged area and allowed additional assets to flow into the disaster area. The declaration authorized the use of federal assets, but according to the Stafford Act, the state must request the necessary assistance. The aftermath of the hurricane left state and local officials overwhelmed from the extent of damage. The same day FEMA recognized the need for substantial federal involvement, a Florida Army National Guard spokesperson stated, "Florida has not requested any support from other states or federal agencies, nor do we see the need."[36] On same day, the Dade County Emergency Operations Director Kate Hale stated, "Where the hell is the cavalry? For God's sake's, where are they? We need food, we need water, and we need

[33] US General Accounting Office, GAO 93-180, *Disaster Assistance; DOD's support for Hurricanes Andrew and Iniki and Typhoon Omar,* June 1993, US Government Printing Office, http://www.gao.gov/products/NSIAD-93-180 (accessed 21 August 2013), 17, 19.

[34] US General Accounting Office, GAO 93-46, *Disaster Management: Recent Disasters Demonstrate the Need to Improve the Nation's Response Strategy,* 5.

[35] US General Accounting Office, GAO 93-180, *Disaster Assistance; DOD's support for Hurricanes Andrew and Iniki and Typhoon Omar,* 19.

[36] Judith M. Anderson, "Hurricane Andrew – Coping with Medical Wipeout," NM (November 1992): 24, quoted in Dale A. Carroll, "The Role of US Army Medical Department in Domestic Disaster Assistance Operations. Lessons Learned from Hurricane Andrew" (Strategic Research Thesis, US Army War College, Carlisle Barracks, PA, 1996), International Association of Firefighters. http://www.iaff.org/hs/disasterrelief/resources/JointTaskForce.pdf (accessed 21 August 2013), 24.

people down here."[37] The Governor of Florida, the official responsible for requesting federal assistance, failed to recognize or request assistance from DOD. On August 28, 1992, Governor Lawton Chiles Jr. stated he "didn't think it was necessary" to request the support of the DOD Title 10 forces. The Governor requested federal assistance three days after the disaster and asked for reserve units not legally eligible for federal service. The federal government viewed this as an official request for active duty forces and within twenty-four hours, Title 10 forces were on the ground in Florida.[38]

The DOD took very few actions prior to the Presidential declaration because they had multiple budgetary and legal concerns. Extensive planning efforts designated units, chains of command, and required preparatory training, but no actions that expended resources occurred prior to the presidential declaration under the Stafford Act. The DOD was reluctant to conduct the necessary actions for deployment because of budget concerns. This contributed to the perceived slow response time to Hurricane Andrew. A quick active duty forces response time relied on the ability to alert units, prepare supplies, equipment, and stage transportation assets prior to a Presidential declaration or a mission tasked by FEMA. The DOD was furthermore concerned about overstepping the legal restrictions that govern the use of Title 10 forces for domestic response incidents. In the case of Hurricane Andrew, it took a directive from President H.W. Bush on August 27, 1992 to begin the massive movement of the required DOD Title 10 forces.

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[37] Mary Jordan, "President Orders Military to Aid Florida; Local Relief Officials Fault Federal Response to Hurricane," *The Washington Post*, 28 August 1992, http://www.highbeam.com/doc/1P2-1022356.html (accessed 12 February 2014).

[38] Thomas W. Lippman, "Troops Arrive With Aid In Ravaged South Florida; 'Blame Game' Over Hurricane Efforts Fades," *The Washington Post*, 29 August 1992, http://www.washingtonpost.com/wp-srv/national/longterm/hurricane/archives/andrew92.htm (accessed 12 February 2014).

The directive pushed forces into Florida without the National Response Plan (NRP) assessment reports from FEMA to inform deployment locations.[39]

The local, state, and federal agencies in the first few days of the disaster faced integration, coordination, and control issues within the response efforts. The DOD reported in the initial days of the response that FEMA failed to explain their responsibilities or how the NRP worked to the DOD. FEMA continued to task the DOD directly instead of working through the ESF with approval by the federal coordinating officer. For example, over 100,000 Meals-Ready-to-Eat arrived at an airfield but the lead proponent for mass care had no idea the supplies were even there. The American Red Cross was the lead for the ESF mass care capability and was therefore not prepared to receive or distribute the food.[40] Governor Chiles explained the uncoordinated effort in his statement, "We've got 120,000 C-rations meals that are here somewhere, but we don't know where the hell they are." He went on to explain the problem as, "Right now, a truckload of food gets there, 200 people show up, 50 people get food and 150 people are angry. We've got to find some way to solve that."[41]

During the period between August 24, 1992 and August 27, 1992 when President H.W. Bush directed the DOD to send support to Florida, the local population of the disaster area endured protracted suffering with unmet needs. There were over 200,000 people homeless and 600,000 were without power. A lack of potable water supplies and contaminated municipal water raised enormous concern for disease. Additionally, looting and demand for assistance efforts to

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[39] US General Accounting Office, GAO 93-180, *Disaster Assistance; DOD's support for Hurricanes Andrew and Iniki and Typhoon Omar,* 22, 27.

[40] US General Accounting Office, GAO 93-180, *Disaster Assistance; DOD's support for Hurricanes Andrew and Iniki and Typhoon Omar,* 5.

[41] Edmund L. Andrews, "Hurricane Andrew; Bush Sending Army To South Florida Amid Criticism of Relief Efforts," *The New York Times*, 28 August 1992, http://www.nytimes.com/1992/08/28/us/hurricane-andrew-bush-sending-army-to-florida-amid-criticism-of-relief-effort.html (accessed 23 January 2014).

provide food increased when all the grocery stores in Dade County closed. Four hospitals remained closed and supplies were slow to arrive due to the damaged road and railroad infrastructure. Despite the degrading situation, the state and local authorities made very few requests for assistance from the DOD who possessed the capabilities to assist with the majority of the unmet needs.[42]

The response of ESF #8 appeared to work in stark contrast to the other efforts FEMA was responsible for in the NRP. On August 20, 1992, the Public Health Service Region IV responsible for Florida received a brief on the tropical storm and the projected landfall in the southern United States. By August 23, 1992, the acting Assistant for the Secretary of Health placed the NDMS on alert, activated 10 DMATs, and deployed an advance element of the Early Response Team to Tallahassee Florida to work with the state government. FEMA agreed on August 24, 1992 to deploy two DMATs and one MSU to southern Florida with DOD aircraft. Three days later on August 27, 1992, the first two teams were operational with an additional three DMATs, one preventive medicine team, and a Mental Health Special Team arrived and established operations. The initial DMATs integrated operations with medical units from the DOD on August 29, 1992. Over the next few weeks, the civilian agencies transitioned mission tasks over to the DOD AMEDD assets deployed with the 18th Airborne Corps.[43]

The response appeared to flow as proposed in the NDMS, yet was fraught with inefficiencies. AMEDD assets assigned to FORSCOM arrived a full five days after the hurricane's landfall and were not operational for another two days. The 44th Medical Brigade stationed at Fort Bragg, North Carolina, received the mission to coordinate with civilian agencies,

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[42] US General Accounting Office, GAO 93-180, *Disaster Assistance; DOD's support for Hurricanes Andrew and Iniki and Typhoon Omar*, 21.

[43] Harold M. Ginsburg, Robert J. Jevec, and Thomas Rutershan, "The Public Health Service's Response to Hurricane Andrew," *Public Health Reports* 108, no. 2 (March-April 1993): 242-244.

integrate employment of DOD medical assets, and provide medical support to the newly formed Joint Task Force Andrew. When medical units finally arrived, they were short critical medical providers, nurses, and other specialized medical personnel. FORSCOM does not commonly station medical providers with their operational units; they work on different installations across the country in medical treatment facilities. The average time to request and receive the additional Title 10 medical personnel shortage was four to 10 days. Most of the providers arrived too late to assist in the initial patient surges directly related to the hurricane event.[44]

Military officials in the Pentagon claimed it would take several days to organize the federal response to south Florida from the time President H.W. Bush issued the mobilization order August 27, 1992.[45] The last minute notification and haphazard deployment caused units to lose accountability. Two AMEDD preventive medicine units without requisition or the knowledge of the 44th Medical Brigade Commander landed in Florida. They possessed a capability desperately needed, yet remained underutilized for precious days before the medical brigade identified and employed the unit. Joint assets from the Navy and Air Force arrived in the disaster area, began to operate in the 44th Medical Brigade's area of operations, and conducted similar missions in areas previously searched and cleared.[46]

The DMAT's initial response confronted similar issues. The teams arrived, treated patients within twenty-four hours of the hurricane's landfall, and averaged over 650 patients per

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[44] Joint Lessons Learned Information System, *Joint Task Force Andrew After Action Report Executive Summary: Surgeon (Tab Q),* https://www.jllis.mil/apps/index.cfm?do=binders:binder.summary&binderid=3111 (accessed 2 November 2013), 3.

[45] Andrews, "Hurricane Andrew; Bush Sending Army To South Florida Amid Criticism of Relief Efforts."

[46] Joint Lessons Learned Information System, *Joint Task Force Andrew After Action Report Executive Summary: Surgeon (Tab Q),* 4.

day during the first few days of the hurricane response effort.[47] DMAT and MSU teams arrived and integrated into ESF #8 activities without the medical supplies to sustain mobile or stationary clinic operations. Within ESF #8 federal proponents the unfamiliarity with the concepts in the NRP, or how FEMA operated with the DOD, caused missions assignment problems. The 44th Medical Brigade consistently received mission assignments intended for the DMAT and MSUs. DMAT teams were unsure of their locations due to a lack of maps and missing road signs. This delayed evacuation movement of patients into the NDMS or the few operational local medical facilities. Further complicating matters, Army medical commanders and staffs lacked the knowledge of FEMA's role. The commanders were unfamiliar with how the NRP and NDMS operated. They did not understand the tasking authorities or the responsibilities and capabilities of ESF #8 agencies. Within ESF #8, the civilian medical supply system was overwhelmed and incapable of supporting medical operations. It was not until the 32nd Medical Battalion arrived to relieve the inundated civilian supply system that urgently required medical supplies started to flow to the federal and military medical units.[48]

Medical supplies and equipment shortages further degraded initial response efforts. The 44th Medical Brigade arrived with limited communications equipment and had to rely on cellular phones to communicate with the other federal agencies. The medical equipment sets designed to treat the average age of the soldiers lacked equipment and pharmaceutical supplies to treat the geriatric and pediatric patients. These patients represented the largest population of sick and injured from the hurricane's destruction. Homestead Air Force Base closed their damaged

[47] Gary Cecchine, Michael A. Wermuth, Roger C. Molander, K. Scott McMahon, Jesse Malkin, Jennifer Brower, John D. Woodward, and Donna F. Barbisch, *Triage for Civil Support: Using Military Medical Assets to Respond to Terrorist Attacks*, 2004, RAND Corporation, http://www.rand.org/content/dam/rand/pubs/monographs/2004/RAND_MG217.pdf (accessed 17 January 2014), 51.

[48] Joint Lessons Learned Information System, *Joint Task Force Andrew After Action Report Executive Summary: Surgeon (Tab Q)*, 5-6.

medical facilities, which exacerbated future equipment and supply problems. The large number of displaced retired military personnel and their dependents turned to the military medical facilities operating in the region to fill their chronic medication shortages and medical needs. The requested medications required special requisition from the civilian supply system already inundated with problems managing the response efforts critical medical supply shortages.[49]

After a few weeks of initial setbacks and issues, the ESF #8 functions integrated the civilian actions with the military capabilities deployed to southern Florida. Brigadier General Peak, the 44th Medical Brigade Commander, established his headquarters with the MSUs and the Health Services Division management agencies. The medical brigade's proximity to the other ESF #8 agencies and daily face-to-face coordination meetings designed to synchronize medical operations delivered immediate benefits. The centralized ESF #8 Civilian Military Operations Center allowed FEMA and the other local or state agencies to request support from a single location. The consolidation of medical assets allowed the major providers of health and medical care in the disaster area to convene to coordinate, organize, prioritize, and provision for the numerous health care requirements in the region.[50] Later named the Health and Medical Task Force, this organization contributed to a unity of effort in disaster relief operations and resulted in the treatment of over 46,000 patients by the end of September 1992.[51] Although the citizens of southern Florida praised the federal military response as a godsend, the problems associated with civil-military operations would mostly go unheeded or changed by politicians, DOD leadership,

[49] Joint Lessons Learned Information System, *Joint Task Force Andrew After Action Report Executive Summary: Surgeon (Tab Q)*, 7.

[50] Ibid., 8.

[51] Cechine et al., *Triage for Civil Support: Using Military Medical Assets to Respond to Terrorist Attacks*, 53.

and other elected officials in the aftermath of Hurricane Andrew. A short 13 years later the same problems would reappear with catastrophic results.

Hurricane Katrina

On August 23, 2005, a tropical depression formed 175 miles southeast of Nassau Island and east of the Bahamas Islands. Two days later, just 15 miles northeast of Fort Lauderdale, Florida, Hurricane Katrina formed into a category one hurricane. By the evening of August 25, 2005, Katrina made landfall near North Miami Beach, Florida, with sustained winds between 80 and 90 miles an hour. As it passed over Florida that night, 14 people lost their lives and extensive damage occurred in the path of the hurricane. The extent of the damage was minimal compared to what lay ahead for the southern Gulf Coast states.[52]

Hurricane Katrina moved off the coast of Florida and strengthened over the warm waters of the Gulf of Mexico. On the afternoon of August 26, 2005, in ideal weather conditions, Katrina became a major hurricane. Just five days after forming from a tropical wave, the winds reached category five conditions with sustained winds of 160 miles per hour that peaked around 175 miles per hour. The massive storm sustained 40 to 70 mile per hour winds 230 miles from the center that already lashed at the coast of Louisiana. On August 28, 2005, the storm surge reported was up to 55 feet high and the eye of the storm was just 90 miles southeast of New Orleans. Ominous warnings went out overnight from the National Hurricane Center that the storm surge could reach 28 feet and breach the levees in the area around New Orleans.[53]

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[52] Axel Grauman, Tamara Houston, Jay Lawrimore, David Levinson, Neal Lott, Sam McCown, Scott Stephens, and David Wuertz, *Hurricane Katrina, A Climatological Perspective*, October 2005, updated August 2006, National Climatic Data Center, National Oceanic and Atmospheric Administration, http://www.ncdc.noaa.gov/oa/reports/tech-report-200501z.pdf (accessed 24 February 2014), 1.

[53] Ibid., 2-3.

The first of two landfalls occurred on August 29, 2005 around six o'clock in the morning in Plaquemines Parish, Louisiana between Grand Isle and the mouth of the Mississippi River with sustained winds reaching 127 miles an hour. As the eye turned in a northerly direction, the second landfall occurred near the border of Louisiana and Mississippi four hours after the initial contact with sustained winds of 121 miles an hour on the northern eye wall. Hurricane Katrina continued to traverse the state of Mississippi unleashing a deluge of rainfall and strong winds. Finally, in Clarksville, Tennessee on the evening of August 30, 2005 it subsided into a tropical depression.[54] By the time the hurricane reached Tennessee, it decimated approximately 90,000 square miles of land. This was an area the size of the United Kingdom and would soon become a watery grave for many of the initial survivors.[55]

In less than 48 hours, Hurricane Katrina claimed 1,833 lives across five states, the third highest death toll in United States history since the Galveston, Texas Hurricane of 1900.[56] The storm displaced over 777,000 people with over 2,000 reported as missing.[57] The damage estimated was approximately 108 billion dollars, by far the costliest hurricane in United States history.[58] The aftermath left over 300,000 homes destroyed, 2.5 million power outages, and 118

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[54] Grauman et al., *Hurricane Katrina, A Climatological Perspective*, 2-3.

[55] US Congress, Senate, Special Report 109-322, *Hurricane Katrina a Nation Still Unprepared*: *Special Report of the Committee on Homeland Security and Governmental Affairs*, 109th Cong., 2nd Sess., 2006, Government Printing Office, http://www.gpo.gov/fdsys/pkg/CRPT-109srpt322/pdf/CRPT-109srpt322.pdf (accessed 21 August 2013), 21.

[56] Richard D. Knabb, Jamie R. Rhoma, and Daniel P. Brown, *Tropical Cyclone Report: Hurricane Katrina 23-30 August 2005*, 20 December 2005, National Hurricane Center, National Oceanic and Atmospheric Administration, http://www.nhc.noaa.gov/pdf/TCR-AL122005_Katrina.pdf (accessed 13 October 2014), 11.

[57] Assistant to the President for Homeland Security and Counterterrorism, *Federal Response to Hurricane Katrina*, 8.

[58] Knabb et al., *Tropical Cyclone Report: Hurricane Katrina 23-30 August 2005*, 13.

million cubic yards of debris littered the area. The communications structure ceased to exist in a functional capacity after the floodwaters and wind damage leveled the low-lying areas. In Louisiana, Mississippi, and Alabama there were over three million phone lines damaged. Thirty-eight 9-1-1 call centers were completely crippled which disrupted the local emergency response efforts.

Hospitals and medical treatment facilities across the Gulf Coast region sustained damage as never seen before, leaving the entire region's health system in shambles. The failure to evacuate special needs patients and vulnerable patient categories left the patients in the dark, flooded, and damaged facilities without power or basic supplies to operate.[59] Patients trapped in the horrid conditions faced insurmountable odds to survive without outside help. For example, 34 nursing home residents succumbed to flood conditions in Saint Bernard Parish, Louisiana when the water entered the facility and they subsequently drowned. The damage major hospitals and treatment facilities received was so extensive it would take months to get them back to full operational capacity.[60]

The state and local preparations prior to Hurricane Katrina's landfall included evacuations, declared states of national emergency, and activation of their National Guard. In Louisiana and Mississippi, contra-flow operations on major highways used for evacuation began two days prior to landfall. More than 92 percent of the population or 1.2 million people evacuated

[59] Special needs patients are those who require continuous treatment in a medical facility with specialized equipment, examples include patients on ventilation equipment, dialysis, and those recently recovering from surgeries in intensive care wards. US Congress, House, Report 109-377 – *A Failure of Initiative Final Report of the Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina*, 31 December 2005, US Government Printing Office, http://www.gpo.gov/fdsys/search/pagedetails.action?browsePath=109/HRPT/%5B300%3B399%5D&granuleId=CRPT-109hrpt377&packageId=CRPT-109hrpt377 (accessed 15 January 2014), 277-278.

[60] Assistant to the President for Homeland Security and Counterterrorism, *Federal Response to Hurricane Katrina,* 8-9, 34.

the region.[61] On August 26, 2005, Louisiana Governor Kathleen Blanco declared a state of emergency and authorized the call up of 2,000 National Guard soldiers for state active duty, and sent a request for a federal disaster declaration to the President.[62]

Although the states made substantial preparations, the medical health care systems of the states failed to transfer special needs patients or adequately prepare their facilities for the impending landfall of Hurricane Katrina. Hospital facilities in Louisiana maintained responsibility for their evacuation plans according to policies established by the Louisiana Hospital Association. Most of the facilities decided to shelter in place due to monetary concerns because they were unsure if FEMA's would reimburse the costs associated with the transfer of patients. This decision contributed to the overwhelming number of special needs patients that required evacuation in the immediate aftermath of the storm.[63] The initial declared evacuation site was the Superdome in New Orleans utilized by a few special needs patients.[64] FEMA attempted to use the same location to stockpile supplies, although the facility soon succumbed to the breached levees and sent the sheltered population clamoring for the stadium seats.

FEMA in addition to the state and local authorities initiated extensive preparations for the second landfall of Hurricane Katrina along the Gulf Coast States. FEMA established 15 sites across the southeast to stage supplies including ice, water, Meals-Ready-to-Eat, and other items such as tarps and shelter systems. The pre-deployed supplies were stacked along airport runways, highways, and large military supply areas capable of providing heavy lift assets to move the

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[61] Assistant to the President for Homeland Security and Counterterrorism, *Federal Response to Hurricane Katrina,* 29.

[62] Wombwell, *Occasional Paper #29: Army Support During the Hurricane Katrina Disaster*, 45.

[63] US Congress, House, Report 109-377 – *A Failure of Initiative*, 267-268.

[64] Wombwell, *Occasional Paper #29: Army Support During the Hurricane Katrina Disaster*, 48.

supplies into the damaged area once the hurricane passed. In addition to pre-deployed supplies, FEMA activated the NDMS on August 27, 2005 and placed DMAT, MSUs and Search and Rescue Teams on alert. FEMA activated the Emergency Response Team and directed the team to Baton Rouge, Louisiana. In the first contact to NORTHCOM, FEMA requested the first mission assignment for the use of the Naval Air Station Meridian, which NORTHCOM approved the same day.[65]

Later in the day of August 27, 2005 as FEMA prepared for the hurricane, President George Walker Bush (President G.W. Bush) received the state request from Governor Blanco, and signed a federal emergency declaration for Louisiana under the Stafford Act. This authorized the full response of the federal government to support the state governor's requests. The President then signed two additional federal emergency declarations for Mississippi and Alabama on August 28, 2005 after the state governors followed suit with Governor Blanco by requesting federal declarations. President G.W. Bush assisted the governors of the Gulf Coast by issuing personal pleas in the media for the citizens in the path of the storm to evacuate. All preparations from the federal level to assist the requests of the state governors proved insufficient to respond to the decimation of the infrastructure and the needs of the population. Katrina rendered local and state organizations impotent in their ability to respond to the stranded populations in the disaster area.[66]

The hurricane presented a case of extremis in all areas of the FEMA NRP. FEMA was overwhelmed and unable to coordinate the federal agencies to alleviate the suffering of the victims. Most of the media attention focused on the city of New Orleans, but all the Gulf Coast states required federal assistance that initially failed to materialize when requested by the states.

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[65] The Assistant to the President for Homeland Security and Counterterrorism, *Federal Response to Hurricane Katrina,* 27.

[66] Ibid., 25-30.

The general public consensus was that the plans failed. The anger at the systematic failure of FEMA's plans turned the focus of response activities to the DOD to come to the rescue.[67] The military initiated the largest mobilization of both National Guard and Title 10 forces deployed in the United States since the American Civil War. In total over 72,000 deployed to support the region.[68]

The DOD reaction proved instrumental in the response efforts even though many officials characterized their actions as slow and too bureaucratic. Many of the same issues Governor Chiles faced in Florida 13 years earlier, reappeared for Governor Blanco in Louisiana. The DOD followed doctrinal preparations for pre-hurricane actions and essentially waited for someone to request assistance.[69] Governor Blanco, initially unaware of the extent of the damage in the state did not specifically ask for Title 10 assistance. Once Louisiana's governor did ask for federal assistance, she asked through various means, none of which followed the Stafford Act, the NRP, or DOD guidance. Louisiana requested federal assistance through their National Guard Bureau, asked President Bush directly to send everything he had to include 40,000 troops, and rejected a proposal for the declaration of the Insurrection Act to federalize the National Guard and allow a dual-hatted commander to control both forces to assist the governor.[70] In addition to the Louisiana governor's confusion about how to request assistance, FEMA did not completely understand what the DOD could provide, further delaying the military response. The Senior

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[67] Scott Shane, "The Fallout: After the failure, Government Officials Play Blame Game," *New York Times*, 5 September 2005, http://www.nytimes.com/2005/09/05/national/nationalspecial/05blame.html?_r=0 (accessed 24 February 2014).

[68] Wombwell, *Occasional Paper #29: Army Support During the Hurricane Katrina Disaster*, 69.

[69] US Congress, Senate, Special Report 109-322, *Hurricane Katrina a Nation Still Unprepared,* 475.

[70] Ibid., 514-521.

Military Advisor for Civil Support, Colonel Richard Chaves, testified that, "FEMA officials did not always have a good understanding of what assets and resources DOD could provide to best accomplish a mission and of DOD's processes for responding to FEMA's requests for assistance."[71] The lack of situational awareness of the civil-military relationship delayed the military response to the stranded victims.

Two contributory events shaped the military response. The first event was a declaration of a Blank Check verbal order on August 30, 2005 by the Acting Deputy Secretary of Defense Gordon England that expanded the definition of immediate response authority. Immediate response authority prior to this declaration related to a commander's authority to act within a reasonable proximity to the location of their units to save lives, alleviate suffering, or prevent massive damage to infrastructure. The decision to push assets prior to the request for assistance rather than the doctrinal answer of a pull method initiated by state requests had a ripple effect down to the tactical level. This vocal order resulted in NORTHCOM's inability to track units as they arrived and then send them to locations where the expertise of the military unit best fit the shortfall of response capability. NORTHCOM did not maintain accountability of the units deployed into the region as commanders acted according to their own initiative. General Richard Rowe, the NORTHCOM Operations Director, described the result as, "a wide open barn door" where self-deployed units arrived without the knowledge of the designated headquarters tasked to coordinate the response efforts.[72]

The other contributory event was the declaration by President G.W. Bush to deploy 7,200 Title 10 forces to Louisiana. President Bush made the decision on September 3, 2005, a full five days after landfall. This decision by the President was the only one that did not originate from an

[71] US Congress, Senate, Special Report 109-322, *Hurricane Katrina a Nation Still Unprepared,* 482.

[72] Ibid., 485-487.

internal DOD decision or from an official FEMA request. Governor Blanco's request for federal military assistance on August 29, 2005 and discussions between Louisiana, NORTHCOM, and Washington, DC was the origin for the deployment of forces.[73] The order by the President and the immediate response authority declaration generated a requirement to organize the forces in the disaster area and then redirect them as necessary. General Harold W. Moulton II, the Standing Joint Force Headquarters-North Commander designated by NORTHCOM, explained the task for his headquarters as, "to get our arms around this Title 10 force structure that's now just basically all merging on the same local area."[74] Deployments, uncoordinated by a single headquarters, were possibly detracting from the unified effort as intended by both the President and the acting deputy secretary of defense.

Perhaps nowhere was this issue more apparent than in ESF #8 and the NDMS civilian-to-military integration effort. The NDMS did not plan for local provisions for short distance evacuation assets such as ground ambulances or helicopters.[75] Hospitals that chose to shelter in place with their patients found, after landfall, that it was nearly impossible to coordinate efforts in the chaotic situation. Poor communications between hospitals, first responders, ambulances, and helicopters hindered efforts to evacuate the damaged hospitals. Flooded streets and security concerns of snipers and other criminal acts further foiled evacuation attempts. The NDMS failed to appoint an evacuation coordinator to work with the ESF #9 search and rescue operations to ensure causalities arrived at designated treatment centers. Another problem was the DMAT teams arrived at the New Orleans airport, and began to receive patients, as opposed to Baton Rouge,

[73] US Congress, Senate, Special Report 109-322, *Hurricane Katrina a Nation Still Unprepared,* 491.

[74] Ibid., 488.

[75] US Government Accountability Office, GAO 06-826, *Disaster Preparedness; Limitations in Federal Evacuation Assistance for Health Care Facilities Should be Addressed*, July 2006, http://www.gao.gov/new.items/d06826.pdf (accessed 23 February 2014), 4.

which was the designated site for evacuees in southern Louisiana and the location where the urgently needed medical supplies were.[76] As the days progressed, the evacuated citizens exposed to the floodwaters remained at intersections along the highway in the searing heat and humidity without medical care, food, or water in many cases. In the few instances where the assets were available, coordination between the DMATs and the civilian evacuation assets delayed the process. An example of this miscommunication was when a chief medical officer for a large ambulance company requested helicopters for air evacuation from the Superdome. After waiting for hours, he walked outside and found donated helicopters from an oil company in the parking lot apparently unused for hours.[77]

The first DOD Title 10 unit to respond with capabilities above combat medics and small treatment capability of the divisions was the 14th Combat Support Hospital (CSH). Seven days after Hurricane Katrina made landfall on September 5, 2005 the 14th CSH received notification to deploy to the region without an official mission assignment. Two days later, the CSH moved from Fort Benning, Georgia to the disaster area, stopped at a middle school in the region, and waited for a deployment destination. Military officials deployed the CSH to the New Orleans Airport without situational awareness of the ongoing problems in ESF #8 or the NDMS operations in the region.[78] The CSH arrived at the New Orleans Airport on September 8, 2005 after the majority of the injured, sick, and special needs evacuees had departed for other regional

[76] US Congress, Senate, Special Report 109-322, *Hurricane Katrina a Nation Still Unprepared*, 400-402.

[77] Shane, "The Fallout: After the Failure, Government Officials Play Blame Game."

[78] US Army Medical Department Lessons Learned, "14th Combat Support Hospital After Action Report," US Army Medical Department, https://secure-ll.amedd.army.mil/lessonslearned/GetItems.aspx?CatID=4&TP=4 aspx?CatID=4&TP=4 (accessed 12 October 2013). 1-2.

hospitals by both civilian and military aircraft.[79] The CSH experienced delays in deployment due to a lack of heavy lift equipment capable of removing their containers from the tractor-trailers and position them inside the hospital footprint. With most of the hurricane victims in the area evacuated, the majority of the patients seen were military personnel injured in the ongoing response and recovery operations. The CSH remained underutilized for two weeks despite the great need to support the destroyed medical facilities inside the city of New Orleans.[80]

The threat of Hurricane Rita in the Gulf Coast in mid-September 2005 caused concern of further flooding and damage to the New Orleans survivors. The 14th CSH received the mission to move forward into the city in the Convention Center and provide the treatment and hospitalization for the survivors in the area. Citizens still in the Convention Center, and in the city of New Orleans, finally received a functional trauma hospital when the CSH employed its 84 bed, surgical capability, dental clinics, and ancillary services nearly a month after Katrina made landfall. The medical facilities in the city suffered such catastrophic damage it was months before they became operational. After a three-day inspection mission with the Joint Commission on Accreditation of Healthcare Organizations team, the Vice President of the National Hospital Accreditation Organization, Joe Cappiello stated, "Essentially the health care infrastructure of New Orleans is gone. It no longer exists."[81] The 14th CSH would remain in the city treating patients until October 10, 2005. The 14th CSH experienced difficulty treating the geriatric and pediatric patients in the displaced population. Pediatric patients require smaller equipment and

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[79] Wombwell, *Occasional Paper #29: Army Support During the Hurricane Katrina Disaster*, 175.

[80] Ibid., 175.

[81] Associated Press, "New Orleans Health Care System Destroyed," NBC News, 20 September 2005, http://www.nbcnews.com/id/9391997/ns/us_news-katrina_the_long_road_back/t/new-orleans-health-care-system-destroyed/#.UyKsrf1OU5s (accessed February 13, 2014).

pharmaceutical dosages not available in the hospital equipment sets. Likewise, the geriatric and special needs patients presented illnesses the hospitals were not equipped to treat.[82] The arrival of the 21st CSH to replace the 14th CSH was not the end of the military medical support; the 21st CSH would remain in New Orleans until the November 14, 2005.[83] With the departure of the 21st CSH in November, the largest military deployment inside the United States since the American Civil War ended. This left the military to consolidate the lessons learned and attempt in the future to improve response efforts to alleviate the gap of pain American citizens' experience in the aftermath of a catastrophic event.

[82] US Army Medical Department Lessons Learned,"14th Combat Support Hospital After Action Report," 1-2.

[83] Wombwell, *Occasional Paper #29: Army Support During the Hurricane Katrina Disaster*, 175.

CASE STUDY COMPARISON AND ANALYSIS

This section of the monograph extracts data from the case studies along three criteria and presents it in a clear context for comparison, analysis and recommendations. The recommendations answer the research question of finding the most efficient way to employ AMEDD's capabilities to reduce the gap of pain. In each case study, the data presented followed a chronological order to display the relationship between the criteria and the gap of pain. The order followed the hurricane event timeline, damage of the hurricane event, interactions and decisions of the key political actors, state and federal response agencies interactions, and the DOD actions associated with AMEDD integration to the operational environment.

The first criterion is the time required for the units to respond and reach the disaster event. Within this criterion, the characteristic events that shape the variable are storm notification, the decision within the legal framework to deploy Title 10 forces, the deployment notification of DOD and AMEDD units, and the time required to arrive at the disaster area. The second criterion is the situational awareness of civil-military relationships that used Title 10 forces to respond to state governor's requests and ability gain a unity of effort. The characteristics in this criterion are the federal to state relationship, FEMA to military relationship, and within ESF #8 the civilian agencies to AMEDD relationship in the response effort. The third criterion is the funding, training of personnel, equipment, and logistics support structure to sustain operations in the unique circumstances of the DSCA environment. Characteristics derived from this criterion are if the legal framework for employment-authorized recoupment of cost expenditure, training and equipment matched the patient population and capacity of the ESF #8 logistics system.

The comparison takes these three criteria by characteristic, derives positive, negative, or neutral data, and charts them under the respective criteria. The assessment of positive (+), negative (-) or neutral (-/+) is an assessment against the gap of pain presented in the introduction.

The result is a table of assessed data that enables the comparison of the two case studies for analysis and recommendations.

Hurricane Andrew

The first criterion used to pull data from the case study was the time to respond to the disaster event. The National Oceanic Atmospheric Administration provided 10 full days from the initial formation on August 14, 1992 until actual landfall on August 24, 1992, which was a positive since it informed the federal, state, and local agencies of the impeding hurricane.[84] President H.W. Bush declared south Florida a disaster area eight hours after Hurricane Andrew made landfall on August 24, 1992.[85] This quick response was positive since it enacted the Stafford Act. Governor Chiles requested federal assistance three days after the disaster on August 27, 1992 and asked for reserve units not legally eligible for federal service.[86] Viewed as a negative, his action confused the response and increased the gap of pain. It took a directive from President H.W. Bush on August 27, 1992 to begin the massive movement of the required DOD Title 10 forces.[87] This was a negative, since the military was reactive and was not prepared to support mission. AMEDD assets assigned to FORSCOM arrived a full five days after the hurricane's landfall on August 29, 1992 and were not operational until August 31, 1992, two days

[84] Rappaport, "Preliminary Report; Hurricane Andrew 16-28 August1992, updated 10 December, addendum 7 February 2005, Category 5 upgrade," 1-2.

[85] US General Accounting Office, GAO 93-180, *Disaster Assistance; DOD's support for Hurricanes Andrew and Iniki and Typhoon Omar*, 19.

[86] Lippman, "Troops Arrive With Aid In Ravaged South Florida; 'Blame Game' Over Hurricane Efforts Fades."

[87] US General Accounting Office, GAO 93-180, *Disaster Assistance; DOD's support for Hurricanes Andrew and Iniki and Typhoon Omar*, 22.

later.[88] Since it was a full week before the medical units could assist in the response efforts, this event was negative.

The second criterion and supported characteristics illuminated the following events for comparison. The governor of Florida, the lead proponent in requesting federal assistance, failed to recognize the need, understand the process, or properly request federal assistance from the DOD.[89] This was a negative evaluation for the federal to state relationship. Next, FEMA recognized the need for substantial federal involvement the same day as the Florida National Guard stated no action was necessary.[90] This displays a negative relationship between FEMA and the National Guard. In the initial days of the recovery effort, FEMA failed to explain their responsibilities or how the NRP worked to DOD.[91] FEMA continued to task the DOD directly instead of working through the ESF with approval by the federal coordinating officer.[92] Once again, this was a negative account of the FEMA to military relationship. The ESF #8 agencies unfamiliarity with the NRP and how FEMA operated with the DOD resulted in erroneous missions assignments. The 44th Medical Brigade received mission assignments instead of the intended ESF #8 federal proponents.[93] Army medical commanders and staffs lacked the knowledge of what FEMA's role was and how the NRP and the NDMS operated. Commanders

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[88] Joint Lessons Learned Information System, *Joint Task Force Andrew After Action Report Executive Summary: Surgeon (Tab Q),* 3.

[89] Lippman, "Troops Arrive With Aid In Ravaged South Florida; 'Blame Game' Over Hurricane Efforts Fades,"

[90] Judith M. Anderson, "Hurricane Andrew – Coping with Medical Wipeout," (National Emergency Management Agency Training Center, November 1992) 4.

[91] US General Accounting Office, GAO 93-180, *Disaster Assistance; DOD's support for Hurricanes Andrew and Iniki and Typhoon Omar,* 5.

[92] Ibid.

[93] Joint Lessons Learned Information System, *Joint Task Force Andrew After Action Report Executive Summary: Surgeon (Tab Q),* 6.

did not understand the tasking authorities, responsibilities and capabilities of ESF #8 agencies.[94] Within this criterion, all aspects are negative and reflect a general lack of situational awareness and no unity of effort from the federal level down to the local jurisdictional level.

The final criterion highlights the data in the case study related to funding, training of personnel, equipment, and logistics support structure to sustain operations. The first event was a positive event because it enabled a cost reimbursement for operations when President Bush declared south Florida a disaster area.[95] The next two events highlight negative attributes of training status of personnel and equipment. First, the 44th Medical Brigade arrived with limited communications equipment and had to rely on cellular phones to communicate with the other federal agencies.[96] Second, the medical equipment sets lacked equipment and pharmaceutical supplies to treat the geriatric and pediatric patients that represented the largest population of sick and injured from the hurricanes destruction.[97] The final event relates to logistics supply capability and was a negative observation due to lack of capacity to fulfill demands. Within ESF eight, the civilian medical supply system was overwhelmed and incapable of supporting medical operations. It was not until the 32nd Medical Battalion arrived, and relieved the inundated civilian supply system, that urgently required medical supplies started to flow to the federal and military medical units.[98] The table below represents the consolidated comparison data discussed in the paragraphs above.

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[94] Joint Lessons Learned Information System, *Joint Task Force Andrew After Action Report Executive Summary: Surgeon (Tab Q),* 5-6.

[95] US General Accounting Office, GAO 93-180, *Disaster Assistance; DOD's support for Hurricanes Andrew and Iniki and Typhoon Omar,* 19.

[96] Joint Lessons Learned Information System, *Joint Task Force Andrew After Action Report Executive Summary: Surgeon (Tab Q),* 5.

[97] Ibid.

[98] Ibid., 5-6.

Table 1. Hurricane Andrew Criteria Data Comparison Table

Hurricane Andrew Criteria Data Comparison Table		
Criterion #1: Time to Respond	Criterion #2: Situational Awareness for Unity of Effort	Criterion #3: Funding, Training, Equipment and Logistics
(+) NOAA ten day notification	(-) Governor's failure to recognize, understand, or properly request federal and DOD assistance	(+) Stafford Act declaration by President authorized cost reimbursement
(+) President disaster declaration in 8 hours	(-) FEMA uncoordinated effort and poor relationship with National Guard and Title 10 forces	(-) lack of communication equipment between military and civilian agencies
(-) Governor's improper request for federal assistance 3 days after landfall	(-) DOD and civilian ESF#8 DMAT and MSU agencies unfamiliarity with NRP process and authorities	(-) lack of geriatric and pediatric equipment, medications and treatment training
(-) DOD's reactive response to Presidential directive to deploy 3 days after landfall	(-) AMEDD commanders lacked understanding of FEMA's role, NDMS, ESF #8 agencies responsibilities and tasking authorities	(-) civilian logistics system lacked capacity to sustain military and civilian ESF #8 operations
(-) AMEDD arrival 5 days after and operational 7 days after landfall		

Source: Created by author.

Hurricane Katrina

The extracted data from the first criterion found similar trends to Hurricane Andrew. The National Oceanic Atmospheric Administration provided notification of the projected path of Hurricane Katrina on August 23, 2005 seven days prior to the landfall on August 29 in southern Louisiana and Mississippi.[99] This positive attribute informed key political decision makers of the size, severity, and location of the hurricane. The President's Stafford Act declaration of a national disaster on August 27 two days prior to landfall for Louisiana, and one day prior for Mississippi

[99] Grauman et al., *Hurricane Katrina, A Climatological Perspective*, 1-3.

and Alabama was a positive event.[100] The first action from the DOD was also a positive event. On August 30, 2005, the Acting Deputy Secretary of Defense Gordon England enacted immediate response authority for subordinate commanders in his "blank check" statement. [101] The declaration by President G.W. Bush to deploy 7,200 Title 10 forces to Louisiana on September 3, 2005 was a negative event because it occurred a full five days after landfall.[102] The delayed notification of the 14th CSH on September 5, 2005, seven days after landfall, to deploy without an official mission assignment was a negative event. The CSH arrived at the New Orleans Airport on September 8, 2005 after the majority of the injured, sick, and special needs evacuees departed for other regional hospitals by both civilian and military aircraft, which was also a negative event in relation to the gap of pain.[103]

In criterion number two, the situational awareness and unity of effort did not improve over the 13 years between the hurricanes. Governor Blanco requested federal assistance through the Louisiana National Guard Bureau, asked President G.W. Bush directly to send federal troops, and rejected a proposal to enact the Insurrection Act to federalize the National Guard that allowed a dual-hatted commander to control both forces to assist the Governor.[104] This displayed poor situational awareness of the relationship between federal and state governments. FEMA's relationship with the military was negative and encapsulated in Colonel Richard Chaves

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[100] Assistant to the President for Homeland Security and Counterterrorism, *Federal Response to Hurricane Katrina,* 25-30.

[101] US Congress, Senate, Special Report 109-322, *Hurricane Katrina a Nation Still Unprepared,* 485-487.

[102] Ibid., 491.

[103] Wombwell, *Occasional Paper #29: Army Support During the Hurricane Katrina Disaster*, 175.

[104] US Congress, Senate, Special Report 109-322, *Hurricane Katrina a Nation Still Unprepared,* 514-521.

testimony that FEMA did not know what assets or resources the DOD could provide or how the military processed requests for support.[105] Unity of effort and situational awareness within ESF #8 was negative and depicted when military officials deployed the CSH to the New Orleans Airport where the capability went underutilized.[106]

For the third criterion, the presidential declarations days prior to landfall and the immediate response authority issued on August 30, 2005 both authorized the cost reimbursement of the deployed units and was a positive event for unit funding.[107] The final three characteristic events were negative. The 14th CSH experienced delays in deployment due to a lack of heavy lift equipment to remove their containers from the tractor-trailers and position them inside the hospital footprint. The CSH lacked medical equipment and treatment skills necessary for the care of geriatric and pediatric patients in the displaced population.[108] The deployment of medical units was not in coordination with the prepositioned medical supplies locations, which hindered supply operations.[109] The table below represents the consolidated comparison data discussed in the paragraphs above.

[105] US Congress, Senate, Special Report 109-322, *Hurricane Katrina a Nation Still Unprepared,* 482.

[106] US Army Medical Department Lessons Learned, "14th Combat Support Hospital After Action Report," 1-2.

[107] Assistant to the President for Homeland Security and Counterterrorism, *Federal Response to Hurricane Katrina,* 25-30.

[108] US Army Medical Department Lessons Learned, "14th Combat Support Hospital After Action Report," 1-2.

[109] US Congress, Senate, Special Report 109-322, *Hurricane Katrina a Nation Still Unprepared,* 400-402.

Table 2. Hurricane Katrina Criteria Data Comparison Table

Hurricane Katrina Criteria Data Comparison Table		
Criterion #1: Time to Respond	Criterion #2: Situational Awareness for Unity of Effort	Criterion #3: Funding, Training, Equipment and Logistics
(+) NOAA seven day notification	(-) Governor Blanco's improper requests for DOD assistance and rejection of Insurrection Act	(+) Stafford Act Declaration and Immediate Response Authority authorized reimbursement of costs
(+) Presidential declaration two days prior to landfall	(-) FEMA unaware of military assets and capability to assist in response efforts	(-) lack of heavy lift equipment to off load large hospital equipment
(+) Immediate Response Authority enacted one day after landfall	(-) FEMA unaware of military process to fill requests for support	(-) lack of training and equipment for pediatric and geriatric patients
(-) Presidential declaration to deploy troops 5 days after landfall	(-) ESF #8 civilian and military lack of coordination for unity of effort	(-) separation of logistics supply points and operation areas over extended supply capacity
(-) delayed notification of medical units to deploy 7 days after landfall	(-) medical units underutilized at deployed to locations while urgent needs went unfulfilled in other areas	
(-) medical unit arrival and operational 10 days after landfall		

Source: Created by author.

Analysis

The criteria comparison data and circumstantial evidence presented in the case studies in concert with the understanding of the legal framework and DSCA environment enable the deduction of trends for analysis and final recommendations. The analysis of the evidence depicts three core trends within the case studies in relation to the gap of pain. First, presidential directive and notification to deploy was an essential characteristic to reduce the gap of pain in the first criterion of time to respond and arrive at the disaster location. Second, a chaotic DSCA environment erodes a procedural response process, and the erosion accelerates when it is not tested, rehearsed, practiced, or fully comprehended by the agencies involved prior to the disaster

event. Third, the DSCA environment presented distinctive requirements medical units were not equipped or trained to deal with. The slow logistics systems conditionally exacerbated the problem and failed produce or deliver the quantity required in a feasible amount of time to reduce the gap of pain.

Within the three trends, there was an emergent need to synchronize the response activities from notification through final redeployment by a single military medical command. The command should holistically understand the process and capabilities of the AHS and possess the capacity to arrange the units in time, space, and purpose in coordination with civilian agencies within the DSCA environment. The 44th Medical Brigade in Hurricane Andrew, specifically Brigadier General Peake and his staff, demonstrated this capacity and capability once they arrived and initiated operations with other agencies to solidify a unity of effort.

RECOMMENDATIONS AND CONCLUSION

The recommendations and conclusions presented here answer the research question: What is the most efficient way of employing the AHS's unique capabilities to assist the citizens of the United States in the aftermath of a natural disaster to reduce the gap of pain? The recommendations and conclusion provide hope that if implemented, they will alleviate to some degree the suffering American citizens' experience following a catastrophic event in the homeland.

Recommendations

The first recommendation is to select a medical brigade headquarters and medical units in FORSCOM from each of the functional areas within AHS to provide a complete System of Systems medical capability during response efforts, ensuring a timely notification of the units assigned the DSCA mission. The second recommendation is regionally align active duty US Army medical units to NORTHCOM. This allows the units to receive necessary funding for training and readiness, specialized equipment, and enable the authority of NORTHCOM under DOD Directive 3025.18 to employ the medical units as the DSCA mission requires. The third recommendation is develop and integrate a training program within ESF #8 for Title 10 medical units, National Guard, and as many civilian response agencies as possible from the federal, state and local jurisdictions for the conduct of a joint and combined exercise once each year prior to the hurricane season.

Conclusion

The purpose of this monograph was to find ways to reduce the gap of pain experienced by American citizens in the aftermath of a natural disaster, such as a hurricane. As the evidence showed from the experience of the Galveston Hurricane in 1900 to Hurricane Katrina in 2005, the nation has come a long way in the past 114 years. It is not always a matter of if, but when the next

catastrophic disaster will strike at the nation's homeland engulfing unsuspecting Americans in the chaotic and horrific conditions. The recommendations here offer hope that US Army active duty medical capabilities will be in position in the future to assist in getting a powerful medical response to the citizens of the United States whose lives will be disrupted and perhaps bring them even one minute closer to life-saving treatment.

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